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CREATIVE WORK OF RUSSIAN SCIENTISTS AND
CHEMICAL TECHNOLOGY. SEVENTY-FIFTH ANNIVERSARY OF
THE RUSSIAN CHEMICAL SOCIETY

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The Department of Chemistry, Academy of Sciences USSR, and the All-Union Scientific Research Chemical Society met on March 30 - 31, 1944, to celebrate the seventy-fifth anniversary of D. I. Mendeleev's establishment of his periodic law and the beginning of the Society's work at St. Petersburg University.

From 1850 to 1870 chemical societies all over the world were publishing their works but those of M. V. Lomonosov were left for B. N. Menshutkin to "discover" at the commencement of the twentieth century. Foreign scientists were invited to the Academy and schools and it was not until 1840 that N. N. Zinin and A. A. Voskresenskiy formed a group of chemists which became the nucleus of the Russian Chemical Society.

The subsequent "classical" period is represented in the pages of the "Journal of the Russian Chemical Society" by such works as those of Mendeleev, A. M. Butlerov and his school (structure of organic compounds); V. V. Markovnikov (synthesis of organic compounds and chemistry of petroleum); N. S. Kurnakov (physico-chemical analysis); A. Ye. Favorakiy (acetylene derivatives); N. D. Zelinskiy (catalytic isomerisation); L. A. Chugayev and his school (complex compounds).

The general opinion that prerevolutionary chemical science was "science for science's sake" is not completely justifiable. Metallurgy, the textile industry, sugar beet production, distilling, etc., were well-developed, but the few existing chemical enterprises were mostly managed by foreigners or unscientifically minded business concerns.

- 1 -

CONFIDENTIAL

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That Mendeleev was not merely a theorist is shown by his writings and his interest in the Petersburg benzene-naphthalene factory. The work of such chemists as D. P. Kononov and M. S. Vrevskiy (vapor tension), A. A. Baykov (smelting of pyrites), research by other scientists on terpenes and various chemical compounds and methods of analysis also benefited industry.

To this period (1870 - 1915) belong many advances in organic chemistry. Discovery of the mobility of halogen in aromatic halogenated, nitro compounds, of alpha-sulfonation of anthraquinone; data obtained on the synthesis of fatty alcohols, ketones and so on; the method of obtaining dioxane and of nitrating paraffins; the work of A. A. Kurbatov, V. V. Markovnikov and S. S. Nametkin on the composition of petroleum are only a few of the instances which might be given.

During the first World War, Society members worked on various products and projects, organizing chemical and petroleum-pyrolysis plants and a Military-Chemical Committee; factories in Baku and other places; producing aromatic hydrocarbons, salicylic acids and other preparations at Kazan and elsewhere; ^{in the} study of aniline dyes; manufacture of gas-masks, etc.

Immediately after the war, the Russian (now State) Institute of Applied Chemistry was formed by members of the Russian Chemical Society (Ivan Karpov was established at Moscow. Some years later the Institute and the Military Chemical Committee at Petrograd, and the Institute of High Pressures split off from the Institute of Applied Chemistry. Other institutions maintained by the Russian Chemical Society, like the Institute of Physico-Chemical Analysis, the Institute of Platinum and Other Rare Metals, the Radium Institute and the Geochemical Laboratory were formed, and later joined the Academy of Sciences of the USSR. In 1927 a technical Department of Applied Chemistry was organized in the Society and in 1928 the "Journal of Applied Chemistry, edited by A. I. Gorbov, made its appearance.

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The Leningrad Oblast Scientific Research Chemical Society with three departments for general and applied chemistry and ^{the} ~~teaching~~ ^{of} chemistry and physics was founded when all branch societies of the Russian Chemical Society were reorganized in 1931. A department of aerochemistry was added in 1934.

In 1937 the Leningrad Oblast Chemical Society with the Leningrad Scientific and Technical Society of Chemists joined the All-Union Scientific Research Society imeni Mendeleev, which in turn, was transferred in 1938 from the People's Commissariat of Education to the Academy of Sciences USSR, where it forms the Leningrad Branch. All four ~~divisions~~ ^{departments} are sections of this Branch.

With the restoration of industry and its development under the Stalin Five-Year Plan, Soviet laboratories utilized a great deal of information obtained from other countries, adding to it and modifying it according to industrial needs. They also derived from the classical period many new chemical products unknown abroad. Some examples are: Kurnakov's work on saline solutions and alloys; Ghugayev's and I. I. Chernyayev's research on complex compounds and ^{the} ~~refining~~ ^{of} rare metals; N. D. Zelinskiy's theoretical work on polymethylene hydrocarbons; S. S. Nametkin's work on petroleum hydrocarbons; A. Ye. Favorakiy's synthesis of acetylene products, etc.

Among the many possible examples of original work in Soviet times may be cited: I. A. Nazarnovskiy's method of obtaining aluminum chloride; the synthetic fertilizers developed by E. V. Britskiy and S. A. Vol'fkovich; the work of I. V. Grebenshchikov and others on glass and abrasive substances; V. G. Khlopin's work on the chemical treatment of radioactive substances; M. M. Dubinin's application of sorption techniques; B. A. Kazanskiy's work on the ring formation of aliphatic hydrocarbons, etc. In the field of synthetic rubber, S. V. Lebedev developed a method for the synthesis of butadiene rubber and introduced it into large-scale

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production. Chloroprene rubber, "Sovpren," is being produced by A. L. Klebanskiy's method.

For other examples see articles by S. N. Danilov, N. I. Smirnov and S. N. Ushakov in the "Journal of Applied Chemistry," No 6, 1942; by Poray-Koshits in "Uspekhi Khimii," No 2, 1943; the Jubilee publication of the Academy of Sciences USSR on "Twenty-Five Years of Successes in Soviet Chemistry,"; and the article by M. A. Blokh in "Trudy Leningradskogo khimiko-tekhnologicheskogo instituta," Vol VI, 1938. But even these articles cannot tell the whole story.

Although students could not be members of the Society, its conferences were open to them and exercised a great influence on them and on all chemists. The Mendeleev Conferences on chemistry and physics, organized by the Society the year of Mendeleev's death, finally had to limit attendance.

In addition to these large conferences, small committees were organized to work on special problems. Thus in 1943 the Leningrad Society formed a committee on silicate materials, gas masks and recovery of solvents and a committee on education in higher and intermediate chemistry, laboratory supplies of reagents, etc.

The Society also offers prizes to stimulate research.

The Library of the Society, founded in 1877, is a great aid to chemists, in spite of fewer opportunities of exchange with foreign institutes and societies.

[A list of presidents and chairmen of the Society is given].

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- 4 -

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